

MARK G. P. SAIFER, PH. D.
Vice President and Scientific Director
Mountain View Pharmaceuticals, Inc.

Education:

University of Pennsylvania	A.B.	1960	Natural Science
University of California, Berkeley	Ph.D.	1966	Biophysics
University of California, Berkeley	Postdoctoral Fellow	1966-68	Bacteriology and Immunology

Professional Experience:

1968-1970	Senior Cancer Research Scientist, Roswell Park Memorial Institute, Buffalo, NY
1970-1971	Research Scientist, Diagnostic Data, Inc., Mountain View, CA
1971-1972	Research Laboratory Director, Diagnostic Data, Inc.
1972-1978	Director, Research and Quality Assurance Laboratories, Diagnostic Data, Inc.
1978-1981	Vice President, Manufacturing and Quality Control, Diagnostic Data, Inc.
1981-6/95	Vice President, Diagnostic Data, Inc. (The company name was changed to DDI Pharmaceuticals, Inc., in 1985 and to Oxis International, Inc., in 1994.)
7/95-10/95	Senior Scientist, Oxis International, Inc., Mountain View, CA
11/95-5/96	Consultant, Oxis International, Inc., Portland, OR
6/96-present	Vice President and Scientific Director, Mountain View Pharmaceuticals, Inc.

Professional Society Memberships:

American Association of Pharmaceutical Scientists; International Society for Free Radical Research; Oxygen Society; Parenteral Drug Association; American Association for the Advancement of Science - Life Member

Selected Patents:

- Huber W, Chow S H, **Saifer** M G P (1974)
Enzymatic treatment of protein mixtures containing orgotein.
US Patent No. 3,806,411; issued in 25 additional countries.
- Huber W, **Saifer** M G P, Williams L D (1977) Cross-linked orgotein.
US Patent No. 4,009,267; issued in eight additional countries.
- Huber W, **Saifer** M G P, Williams L D (1977) Acylated orgotein.
US Patent No. 4,017,605; issued in 14 additional countries.
- Saifer** M G P, Williams L D, Huber W (1977)
Reduction of superoxide accumulation caused by smoke inhalation.
US Patent No. 4,022,224
- Huber W, **Saifer** M G P, Williams L D (1977) Radioactive labeled orgotein.
US Patent No. 4,022,877; also issued in Canada.
- Huber W, **Saifer** M G P, Williams L D (1977) Esterified orgotein.
US Patent No. 4,022,888; issued in seven additional countries.
- Huber W, **Saifer** M G P, Williams L D (1977) Alkylated orgotein.
US Patent No. 4,042,689; issued in seven additional countries.

Huber W, **Saifer** MGP, Williams LD (1978) N-Carbamylated orgetein.
US Patent No. 4,070,459; issued in seven additional countries.

Saifer M, Somack R, Williams LD (1991) Conjugates of superoxide dismutase coupled to high molecular weight polyalkylene glycols.
US Patent No. 5,006,333; issued in 24 additional countries.

Saifer M, Somack R, Williams LD (1992) Conjugates of superoxide dismutase coupled to high molecular weight polyalkylene glycols.
US Patent No. 5,080,891

Saifer M, Somack R, Williams LD (1994) Intermediates for conjugation of polypeptides with high molecular weight polyalkylene glycols.
US Patent No. 5,283,317

Saifer M, Somack R, Williams LD (1995) Conjugates of superoxide dismutase coupled to high molecular weight polyalkylene glycols.
US Patent No. 5,468,478

Williams LD, Hershfield MS, Kelly SJ, **Saifer** MGP, Sherman MR (2000). PEG-urate oxidase conjugates and use thereof.
PCT Publication No. WO 2000/07629, Mountain View Pharmaceuticals, Inc., and Duke University; granted or allowed in 36 countries.

Sherman MR, **Saifer** MGP, Williams LD, Hershfield MS, Kelly SJ (2001). Aggregate-free urate oxidase for preparation of non-immunogenic polymer conjugates.
PCT Publication No. WO 2001/59078, Mountain View Pharmaceuticals, Inc., and Duke University; granted or allowed in 34 countries.

Saifer MGP, Williams LD (2001) Quantitation of viruses by light scattering.
US Patent No. 6,316,185 B1

Saifer MGP, Williams LD (2003) Quantitation of viruses by light scattering.
US Patent No. 6,544,770 B2

Williams LD, Hershfield MS, Kelly SJ, **Saifer** MGP, Sherman MR (2003). PEG-urate oxidase conjugates and use thereof.
US Patent No. 6,576,235 B1, Mountain View Pharmaceuticals, Inc., and Duke University.

Saifer MGP, Williams LD (2004) Quantitative detection of viruses by light scattering.
European Patent EP 1 218 722 B1; validated in three countries.

Sherman MR, **Saifer** MGP, Williams LD, Hershfield MS, Kelly SJ (2004). Aggregate-free urate oxidase for preparation of non-immunogenic polymer conjugates.
US Patent No. 6,783,965 B1, Mountain View Pharmaceuticals, Inc., and Duke University.

Martinez AL, Sherman MR, **Saifer** MGP, Williams LD (2004). Polymer conjugates with decreased antigenicity, methods of preparation and uses thereof.
US Patent Application Publication No. 2004/0062746 A1, Mountain View Pharmaceuticals, Inc.

Martinez AL, Sherman MR, **Saifer** MGP, Williams LD (2004). Polymer conjugates with decreased antigenicity, methods of preparation and uses thereof.
PCT Publication No. WO 2004/060617 A2, Mountain View Pharmaceuticals, Inc.; granted or allowed in 15 countries.

- Saifer** MGP, Martinez AL, Williams LD, Sherman MR (2004). Polymer conjugates of interferon-beta with enhanced biological potency.
US Patent Application Publication No. 2004/0126361 A1, Mountain View Pharmaceuticals, Inc.
- Saifer** MGP, Martinez AL, Williams LD, Sherman MR (2004). Polymer conjugates of interferon-beta with enhanced biological potency.
PCT Publication No. WO 2004/060299 A2, Mountain View Pharmaceuticals, Inc.; granted or allowed in 12 countries.
- Bhaskaran SS, Sherman MR, **Saifer** MGP, Williams LD (2004). Polymer conjugates of cytokines, chemokines, growth factors, polypeptide hormones and antagonists thereof with preserved receptor-binding activity.
US Patent Application Publication No. 2004/0136952 A1, Mountain View Pharmaceuticals, Inc.
- Bhaskaran SS, Sherman MR, **Saifer** MGP, Williams LD (2004). Polymer conjugates of cytokines, chemokines, growth factors, polypeptide hormones and antagonists thereof with preserved receptor-binding activity.
PCT Publication No. WO 2004/060300 A2, Mountain View Pharmaceuticals, Inc.; granted or allowed in 10 countries.
- Williams LD, Hershfield MS, Kelly SJ, **Saifer** MGP, Sherman MR (2005). PEG-urate oxidase conjugates and use thereof.
European Patent EP 1 100 542 B1, Mountain View Pharmaceuticals, Inc., and Duke University; validated in 19 countries.
- Sherman MR, **Saifer** MGP, Williams LD, Hershfield MS, Kelly SJ (2005). Aggregate-free protein compositions and methods of preparing same.
US Patent Application Publication No. 2005/0014240 A1, Mountain View Pharmaceuticals, Inc., and Duke University.
- Sherman MR, Martinez AL, Bhaskaran SS, Williams LD, **Saifer** MGP, French JA (2007). Polymer conjugates of proteinases.
US Patent No. 7,229,810 B2, Mountain View Pharmaceuticals, Inc.
- Sherman MR, Martinez AL, Bhaskaran SS, Williams LD, **Saifer** MGP, French JA (2008). Polymer stabilized proteinases.
European Patent EP 1 421 175 B1, Mountain View Pharmaceuticals, Inc.; validated in 10 countries.
- Williams LD, Hershfield MS, Kelly SJ, **Saifer** MGP, Sherman MR (2008). PEG-urate oxidase conjugates and use thereof.
US Patent Application Publication No. 2008/0031864 A1, Mountain View Pharmaceuticals, Inc., and Duke University; Notice of Allowance received December 1, 2010.
- Sherman MR, **Saifer** MGP, Williams LD, Hershfield MS, Kelly SJ (2010). Aggregate-free urate oxidase for preparation of non-immunogenic polymer conjugates.
European Patent EP 1 254 237 B1; Mountain View Pharmaceuticals, Inc., and Duke University; validated in 20 countries.
- Williams LD, Hershfield MS, Kelly SJ, **Saifer** MGP, Sherman MR (2010). PEG-urate oxidase conjugates and use thereof.
US Patent No. 7,723,089 B2, Mountain View Pharmaceuticals, Inc., and Duke University.

Williams LD, Hershfield MS, Kelly SJ, **Saifer** M G P, Sherman MR (2011). PEG-urate oxidase conjugates and use thereof.
European Patent EP 1 588 716, Mountain View Pharmaceuticals, Inc., and Duke University; publication expected February 16, 2011.

Publications and Presentations:

- Huber W, Menander-Huber K B, **Saifer** M G P, Dang P H-C (1977) Studies on the clinical and laboratory pharmacology of drug formulations of bovine Cu-Zn superoxide dismutases (orgotein). In: Perspectives in Inflammation. Future Trends and Developments, Willoughby DA, Giroud J P, Velo G P, eds., University Park Press, Baltimore, pp 527-540.
- Huber W, **Saifer** M G P (1977) Orgotein, the drug version of bovine Cu,Zn superoxide dismutase: I. A summary account of safety and pharmacology in laboratory animals. In: Superoxide and Superoxide Dismutases, Michelson A M, McCord J M, Fridovich I, eds., Academic Press, London, pp 517-536.
- Huber W, **Saifer** M G P, Williams LD (1980) Superoxide dismutase pharmacology and orgotein efficacy: New perspectives. In: Developments in Biochemistry, Vol. 11B, Bannister WH, Bannister J V, eds., Elsevier, Amsterdam, pp 395-407.
- Williams LD, **Saifer** M G, Dang P H-C, Huber W (1980) Development of an arthus-like model of induced inflammation and its use in the anti-inflammatory characterization of orgotein (bovine Cu,Zn superoxide dismutase). In: Inflammation: Mechanism and Treatment, Willoughby DA, Giroud J P, eds., MTP Press, Lancaster, UK, pp 149-156.
- Huber W, Menander-Huber K B, **Saifer** M G P, Williams LD (1980) Bioavailability of superoxide dismutase: Implications for the antiinflammatory action mechanism of orgotein. Agents and Actions Supplement 7: 185-195.
- Saifer** M G P, Williams LD, Dang P H-C, Somack R, Sloan C, Miranda QR (1986) Orgotein, the drug version of bovine copper, zinc superoxide dismutase: III. Properties of injectable superoxide dismutase. In: Superoxide and Superoxide Dismutase in Chemistry, Biology and Medicine, Rotilio G, ed., Elsevier, Amsterdam, pp 493-496.
- Somack R, **Saifer** M G P, Williams LD (1991) Preparation of long-acting superoxide dismutase using high molecular weight polyethylene glycol (41,000-72,000 daltons), Free Radical Research Communications 12-13: 553-562.
- Saifer** M G, Somack R, Williams LD (1993) Plasma clearance and immunologic properties of long-acting superoxide dismutase prepared using 35,000-120,000 dalton polyethylene glycol (PEG). Sixth International Conference on Superoxide and Superoxide Dismutase, Kyoto, Japan.
- Saifer** M G P, Somack R, Williams LD (1994) Plasma clearance and immunologic properties of long-acting superoxide dismutase prepared using 35,000-120,000 dalton poly-ethylene glycol (PEG). In: Frontiers of Reactive Oxygen Species in Biology and Medicine, Asada K, Yoshikawa T, eds., Elsevier, Amsterdam, pp 423-424.
- Saifer** M G P, Somack R, Williams LD (1994) Plasma clearance and immunologic properties of long-acting superoxide dismutase prepared using 35,000 to 120,000 dalton poly-ethylene glycol (PEG). In: Free Radicals in Diagnostic Medicine: A Systems Approach to Laboratory Technology, Clinical Correlations and Anti-oxidant Therapy, Armstrong D, ed., Plenum, New York, pp 377-387.

- Smith R A, Balis F M, Ott K H, Elsberry D D, Sherman M R, **Saifer** M G P (1995) Pharmacokinetics and tolerability of ventricularly administered superoxide dismutase in monkeys and preliminary clinical observations in familial ALS. Journal of the Neurological Sciences 129 (Suppl): 13-18.
- Saifer** M G P, Williams L D, Sherman M R, French J A, Kwak L W, Oppenheim J J (1997) Improved conjugation of cytokines using high molecular weight poly(ethylene glycol): PEG-GM-CSF as a prototype. Polymer Preprints 38:576-577.
- Sherman M R, Williams L D, **Saifer** M G P, French J A, Kwak L W, Oppenheim J J (1997) Conjugation of high molecular weight poly(ethylene glycol) to cytokines: Granulocyte-macrophage colony-stimulating factors as model substrates. In: Poly(ethylene glycol) Chemistry and Biological Applications, ACS Symposium Series 680, Harris J M, Zalipsky S, eds., American Chemical Society, Washington, DC, pp 155-169.
- Kelly S J, Delnomdedieu M, Oliverio M I, Williams L D, **Saifer** M G P, Sherman M R, Coffman T M, Johnson G A, Herschfield M S (2001) Diabetes insipidus in uricase-deficient mice: A model for evaluating therapy with poly(ethylene glycol)-modified uricase. J Am Soc Nephrol 12:1001-1009.
- Sherman M R, **Saifer**, M G P, Perez-Ruiz, F (2008). PEG-uricase in the management of treatment-resistant gout and hyperuricemia. Adv Drug Deliv Rev 60:59-68.